CLAIMS

What is claimed is:

1. A method for detecting silent failures in a system, comprising the steps of:

5   identifying an operational signature of said system, said operational signature being representative of the system when it is operating properly;

    obtaining samples of operational service measurements;

    comparing said samples with said operational signature; and

    performing a corrective measure if said comparison of said samples

10 with said operational signature indicates the probability of a silent failure of said system.

2. The method of claim 1, wherein said system comprises a processing system having at least one Active Unit (AU) and at least one Standby Unit (SU), and wherein

15 said step of performing a corrective measure comprises at least the steps of:

    automatically activating said at least one SU if said comparison indicates that a silent failure has occurred with respect to said at least one AU.

3. The method of claim 2, wherein said step of performing said corrective

20 measure further comprises at least the step of:

    automatically initiating an alert indicating that a silent failure of said system is probable.

4. The method of claim 3, wherein said alert process comprises automatically

25 communicating with a technician electronically.

5. The method of claim 1, wherein said identifying step comprises at least the steps of:

monitoring said system during an index period to obtain a set of index service measurements;

evaluating said index service measurements and determining said operational signature based on said index service measurements.

6. The method of claim 5, wherein said identifying step is instituted during a period when said system is actively online.

7. The method of claim 5, wherein said identifying step is instituted during a period when said system is not actively online.

8. The method of claim 7, wherein said index service measurements are updated at predetermined times to incorporate said operational service measurements therein.

9. The method of claim 1, wherein said system comprises a telecommunications system that includes a call processing function, said operational characteristics comprising:

call requests; and

successful call requests.

10. The method of claim 1, wherein said system comprises a telecommunications system that includes a mobility function, said operational characteristics comprising:

attempted handovers;

successful handovers; and

paging requests.

11. A system for detecting silent failures in a system, comprising:

means for identifying an operational signature of said system, said operational signature being representative of the system when it is operating properly;

means for obtaining samples of operational service measurements;

means for comparing said samples with said operational signature; and

means for performing a corrective measure if said comparison of said samples with said operational signature indicates the probability of a silent failure of said system.

12. The system of claim 11, wherein said system comprises a processing system having at least one Active Unit (AU) and at least one Standby Unit (SU), and wherein said step of performing a corrective measure comprises:

means for automatically activating said at least one SU if said comparison indicates that a silent failure has occurred with respect to said at least one AU.

13. The system of claim 12, wherein said step of performing said corrective measure further comprises:

means for automatically initiating an alert indicating that a silent failure of said system is probable.

14. The system of claim 13, wherein said alert process comprises means for automatically communicating with a technician electronically.

15. The system of claim 11, wherein said identifying step comprises:

    means for monitoring said system during an index period to obtain a set of index service measurements;

    means for evaluating said index service measurements and determining said operational signature based on said index service measurements.

16. The system of claim 15, wherein said identifying step is instituted during a period when said system is actively online.

17. The system of claim 15, wherein said identifying step is instituted during a period when said system is not actively online.

18. The system of claim 17, wherein said index service measurements are updated at predetermined times to incorporate said operational service measurements therein.

19. The system of claim 11, wherein said comparing step is performed using hypothesis testing.

20. The system of claim 11, wherein said comparison step is performed using change-point detection.

21. A computer program product recorded on computer readable medium for detecting silent failures in a system, comprising:

    computer readable means for means for identifying an operational signature of said system, said operational signature being representative of the system when it is operating properly;

computer readable means for means for obtaining samples of operational service measurements;

computer readable means for means for comparing said samples with said operational signature; and

5   computer readable means for means for performing a corrective measure if said comparison of said samples with said operational signature indicates the probability of a silent failure of said system.

22.   The computer program product of claim 21, wherein said computer
10   readable system means comprises a processing system having at least one Active Unit (AU) and at least one Standby Unit (SU), and wherein said step of performing a corrective measure comprises:

computer readable means for automatically activating said at least one SU if said comparison indicates that a silent failure has occurred with respect to said
15   at least one AU.

23.   The computer program product of claim 22, wherein said step of performing said corrective measure further comprises:

computer readable means for automatically initiating an alert
20   indicating that a silent failure of said system is probable.

24.   The computer program product of claim 23, wherein said alert process comprises computer readable means for automatically communicating with a technician electronically.

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25.   The computer program product of claim 21, wherein said identifying step comprises:

computer readable means for monitoring said system during an index period to obtain a set of index service measurements;

computer readable means for evaluating said index service measurements and determining said operational signature based on said index service

5   measurements.

26. The computer program product of claim 25, wherein said identifying step is instituted during a period when said system is actively online.

10   27. The computer program product of claim 25, wherein said identifying step is instituted during a period when said system is not actively online.

28. The computer program product of claim 27, wherein said index service measurements are updated at predetermined times to incorporate said operational

15   service measurements therein.

29. The computer program product of claim 21, wherein said comparing step is performed using hypothesis testing.

20   30. The computer program product of claim 21, wherein said comparison step is performed using change-point detection.